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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/609,069	06/27/2003	K. Scott Weil	12903-B	7459

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EXAMINER	
ECHELMEYER, ALIX ELIZABETH	
ART UNIT	**PAPER NUMBER**
1745	

DATE MAILED: 02/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/609,069	WEIL ET AL.	
	Examiner	Art Unit	
	Alix E. Echelmeyer	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 June 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☒ Claim(s) *1 and 14-16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities: the acronyms SOFC and PEN should be defined in the claims before being used in the claims. Appropriate correction is required.

2. Claims 14 and 15 are objected to because of the following informalities: the claims discuss referencing a method claim but appear to reference a product claim. For example, claim 14 reads: "The method of claim 13" while claim 13 refers to a solid oxide fuel cell. Perhaps applicant meant "the solid oxide fuel cell of claim 13." Appropriate correction is required.

3. Claim 16 objected to because of the following informalities: it references claim 11 but it appears that applicants meant to reference claim 13. Appropriate correction is required.

Claim Interpretation

4. Based on the objections to claims 14-16 in paragraphs 2 and 3 above, the examiner has interpreted the following:

Claim 14 references the *solid oxide fuel cell* of claim 13.

Claim 15 references the *solid oxide fuel cell* of claim 14.

Claim 16 references the solid oxide fuel cell of claim *13*.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 3, 8, 9-14, and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Haltiner et al. (US 2003/0235746 A1).

Haltiner et al. teach a solid oxide fuel cell (SOFC) having sheet metal parts stamped from flat stock (abstract, [0009], [0010]). The parts, including a mounting frame for a positive electrode – electrolyte – negative electrode (PEN) and a separator plate, are used to form modules, or cells (abstract, [0009]). Those modules can then be stacked to form a fuel cell stack (Fig. 7, [0032]). Haltiner et al. also teach the use of current collectors which may be connected across a load (Fig. 3, [0003], [0025]). Glass seals are used between the modules. A glass layer or ceramic adhesive is applied prior to assembly, then the stack is "subjected to high pressure ad temperature, whereby the glass seals are liquefied and fused" ([0032]).

Regarding claim 1, the SOFC modules of Haltiner et al. contain a stamped separator plate, a stamped frame, a PEN attached to the frame, and the frame attached to the separator plate. Regarding claims 3 and 17, the SOFC of Haltiner et al. contains current collectors that are in communication with the separator plate. Applicants' claim 8 is for a method of making a SOFC stack, and claim 13 is a SOFC stack. Haltiner et al. teach the combination of several modules to form a stack as well as the sealing of the modules.

Applicants' claims 9-12, 14, and 15 are drawn to the method of sealing a SOFC stack and the seal on the SOFC stack. Haltiner et al. teach insulating seals made of glass or a ceramic. The seal is formed by exposure to high temperature and pressure. Further, Haltiner et al. teach the connection of separator plates and frames by brazing.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 2 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haltiner et al. in view of Carolan et al. (US Patent Number 5,750,279). The teachings of Haltiner et al. as discussed above are incorporated herein.

Haltiner et al. teach a fuel cell stack and the method of making it wherein the stack is made up of modules. The modules are formed by frames containing a PEN, which are connected to separator plates. Haltiner et al. fail to teach the use of 400 series stainless steel as the material for the frames and separators.

Carolan et al. teach that stainless steel (400 series) is suitable for use in SOFC's because it is resistant to corrosion and oxidation.

It would be favorable to use 400 series stainless steel as taught by Carolan et al. in the SOFC of Haltiner et al. because 400 series stainless steel can be stamped as required in Haltiner et al., and it is also resistant to corrosion and oxidation.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the 400 series stainless steel of Carolan et al. in the SOFC of Haltiner et al. because 400 series stainless steel is resistant to corrosion and oxidation.

9. Claims 4-7 and 18-21 rejected under 35 U.S.C. 103(a) as being unpatentable over Haltiner et al. and Carolan et al. in view of James et al. (US Patent Number 5,766,789 A). The teachings of Carolan et al. discussed above are incorporated herein.

Carolan et al. teach the use of a 400 series stainless steel electrically conducting interconnect. Carolan et al. fail to teach the use of a flexible material such as a screen for those interconnects.

James et al. teach the use of a screen as a flexible material for an interconnect (column 3 lines 24-26). James et al further teach a compound containing mostly (76%) nickel for the formation of the screen used as the current collector in the anode.

By forming the current collector of Carolan et al. with the screen of James et al., a current collector made from a flexible, electrically conductive material is made.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to make the current collector of Carolan et al. with the screen of James et al. in order to make a flexible, electrically conductive current collector.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alix E. Echelmeyer whose telephone number is 571-272-1101. The examiner can normally be reached on Mon-Fri 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alix E Echelmeyer
Examiner
Art Unit 1745

aee

PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER